

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in the application:

**Listing of Claims:**

1-8 (canceled).

9. (Currently Amended): An avoidance device for a ship, allowing said ship ~~the avoidance of to avoid~~ floating or slightly submerged objects situated on ~~its~~ a route of the ship or in a zone close to ~~this~~ said route, comprising:

two transmitters of acoustic waves spaced apart from one another[[,]];

an acoustic receiver, whose reception band is suitable for the transmission frequencies of the transmitters, said receiver being configured to receive echoes resulting from the reflection of the signals transmitted by each of the transmitters;

means of processing of the received signals, said processing means making it possible to perform performing, through from the echoes echoes received, a measurement of the difference of the propagation times of the waves transmitted by each of the transmitters after reflection of the waves by an object as well as a measurement of the Doppler effect which affects each of the transmitted waves; said processing means implementing a process for determining the position of said object comprising the two following stages: thus determining the position of a the object having returned an echo.

a first stage, during which a coarse determination of the position of the object is carried out by calculation of the difference (T<sub>2</sub>-T<sub>1</sub>) of the propagation times of the waves;

a second stage during which the position of the object is determined in a more precise manner by calculation of the differential Doppler frequency Δf<sub>d</sub> of

the waves from the frequencies  $F_1$  and  $F_2$  transmitted by the transmitters, and from the frequencies  $Fr_1$  and  $Fr_2$  received by the receiver, said differential Doppler frequency  $\Delta f_d$  being defined by the following relation:

$$\Delta f_d = \Delta Fr - \Delta F$$

wherein

$$\Delta Fr = Fr_2 - Fr_1 \text{ and } \Delta F = F_2 - F_1.$$

10. (Currently Amended): The device as claimed in claims 9, wherein said processing means determine the position of an object on the basis of the calculation of the temporal deviation  $\Delta T$  and of the Doppler frequency deviation  $\Delta f_d$ , existing between the two waves reflected by said object, a reflected wave originating from the first transmitter, and the other reflected wave originating from the second transmitter. Two transmitters emit waves of distinct frequencies or of different waveforms.

11. (Currently Amended): The device as claimed in claim 9, wherein said two transmitters emit waves of distinct frequencies or of different waveforms. An avoidance device for a ship, allowing said ship to avoid floating or slightly submerged objects situated on a route of the ship or in a zone close to said route, comprising at least:

- one transmitter of acoustic waves transmitting two waves each wave having a different frequency or waveform from the other;

- two acoustic receivers, spaced apart from one another, the reception band of each receiver being suitable for one of the transmission frequencies of the transmitter, said receivers being configured to receive echoes resulting from the reflection of the signals transmitted by the transmitters;

- means of processing of the received signals, these means performing, from the echoes received, a measurement of the difference of the propagation times of the waves transmitted by each of the transmitters after their reflection by an object as well as a measurement of the Doppler effect which affects each of the transmitted waves; said processing means implementing a process for determining the position of said

object comprising the two following stages:

- a first stage during which a coarse determination of the position of the object is carried out by calculation of the difference  $(T_2 - T_1)$  of the propagation times of the waves;
- a second stage during which the position of the object is determined in a more precise manner by calculation of the differential Doppler frequency  $\Delta f_d$  of the waves from the frequencies  $F_1$  and  $F_2$  transmitted by the transmitters, and from the frequencies  $F_{r1}$  and  $F_{r2}$  received by the receiver, said differential Doppler frequency  $\Delta f_d$  being defined by the following relation:

$$\Delta f_d = \Delta F_r - \Delta F$$

wherein:

$$\Delta F_r = F_{r2} - F_{r1} \text{ and } \Delta F = F_2 - F_1.$$

12. (Currently Amended): The device as claimed in claim 11, wherein said processing means determine the position of an object on the basis of the calculation of the temporal deviation  $\Delta T$  and of the Doppler frequency deviation  $\Delta F_d$  existing between the two waves reflected by said object, a reflected wave originating from the first transmitter, and the other reflected wave originating from the second transmitter. A multihull ship comprising a device as claimed in claim 9, the two transmitters of acoustic waves being disposed on different hulls and the acoustic receiver disposed on any one of the hulls.

13. (Currently Amended): A multihull ship comprising a device as claimed in claim 911, the two transmitters receivers of acoustic waves being disposed on different hulls and the acoustic receiver-transmitter being disposed on any one of the hulls.

14. (Currently Amended): A detection and avoidance system for a ship, said system permitting the said ship to detect and avoid objects approaching at a high

speed, said system comprising devices according to claim 49, one device being mounted on each side of ~~the~~ said ship.

15. (Currently Amended) A ship positioning control system, for controlling the ~~entrance passage of a ship through~~ a port comprising at least one device according to claim 9, said device being positioned at ~~the entrance~~ ~~an opening~~ of ~~the~~ said port.

16. -17. (Canceled)

18. (New): A detection and avoidance system for a ship, said system permitting said ship to detect and avoid objects approaching at a high speed, said system comprising devices according to claim 11, one device being mounted on each side of said ship.

19. (New) A ship positioning control system, for controlling the passage of the ship through a port comprising at least one device according to claim 11, said device being positioned at an opening of said port.